

ABSTRACT

Inflation rates are of many types. In this study univariate and multivariate forecast models are developed for monthly inflation rates of Pakistan. The data of six types of inflation rates and two explanatory variables are obtained on monthly basis from State Bank of Pakistan and Federal Bureau of Statistics starting from January 2001 to May 2007. The stationarity of all the variables is checked by subjective as well as objective methods. Univariate ARIMAX forecast models for all the inflation rates under study are estimated. Granger causality test is applied to assess the direction of causality that may run among inflation rates. Finally multivariate VARX forecast models are developed to see the effect of various inflation rates on each other.

Various diagnostic tests are applied to pick the best forecast model in both univariate and multivariate cases. Diagnostic checks like ARMA structure, correlogram of residuals, correlogram of squared residuals, Kolmogorov-Smirnov test and one sample t-test are applied on estimated ARIMAX models for the purpose of validating the estimated ARIMAX models. Moreover diagnostic checks like ARMA structure, variance decomposition, lag length order selection criteria, ARCH LM test and multivariate normality test are applied for the purpose of validating the estimated VARX(1) model.

It was found that by incorporating the X component in ARIMA and VAR to convert them into ARIMAX and VARX techniques, the results obtained were improved because of the decrease in the standard errors of the estimated ARIMAX and VARX models. The independent variables included in ARIMA and VAR techniques are the Exchange rate (Rupee/Dollar parity) and the foreign exchange reserves. Moreover the estimated ARIMAX and VARX models have very good predictive power.